

The Index of Refraction

- The speed of light changes as it goes from one _____ to another
- Light travels _____ in a vacuum – $3 \times 10^8 \text{m/s}$
- The ratio between the speed of light in a vacuum ($c = 3 \times 10^8 \text{m/s}$) and the speed of light in a medium is called the _____

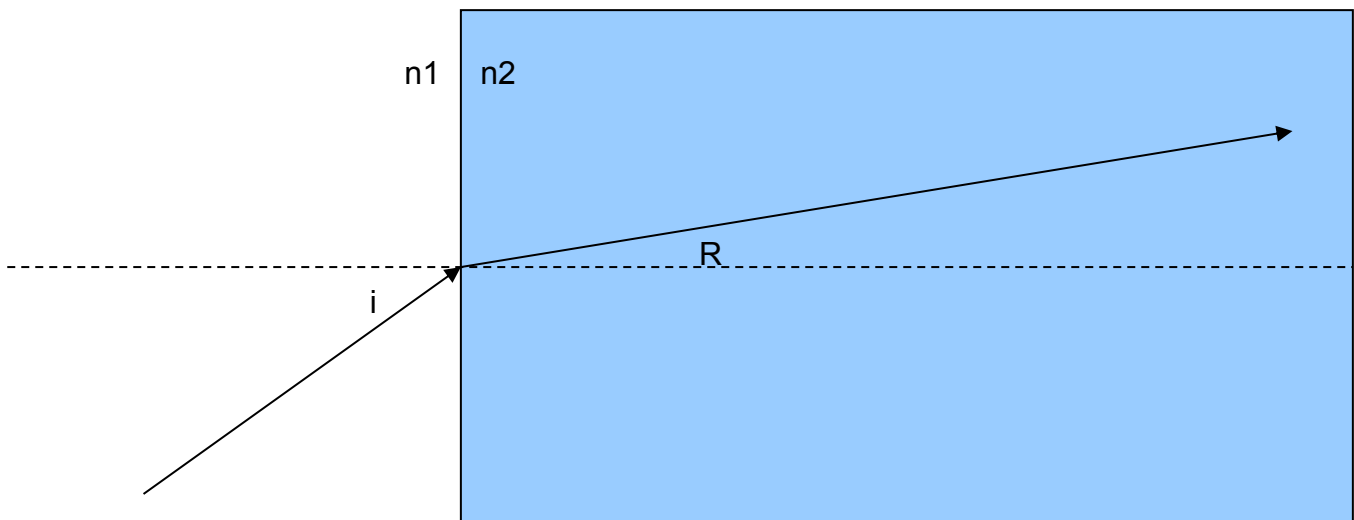
$$n = \frac{c}{v}$$

$$n = \frac{\sin \angle i}{\sin \angle R}$$

- The _____ the index of refraction, the _____ the optical density of the medium, the _____ the speed of light and the _____ light bends
- air ($n=1.00$), glass ($n=1.52$), diamond ($n=2.42$)

Rules for Refraction

- The incident ray, refracted ray and the normal all lie in the same _____
- The incident ray and refracted ray are always on _____ sides of the normal
- Light bends _____ the normal when the going into a more dense material
- Light bends _____ the normal when going into a less dense material



1. The speed of light in vinegar is 2.3×10^8 m/s. Determine the index of refraction.
2. The speed of light in sapphire is 1.69×10^8 m/s. Determine the index of refraction.
3. The index of refraction for acetone is 1.36. What is the speed of light in acetone?
4. The angle of incidence for light travelling into water is 35° and the angle of refraction is 25° .
What is the index of refraction?